Total recall? Examining the accuracy of poll recall during an election campaign

Zerback, Thomas ; Reinemann, Carsten ; Barnfield, Matthew

Abstract: Despite a considerable interest in the effects of polls published during election campaigns, we know little about how well people internalize and remember their results. This paper studies how accurately citizens recall poll results and factors potentially influencing this accuracy. Theoretically, we draw on research into the perception of polls and poll effects as well as into media effects on political knowledge in general. Empirically, we investigate recall accuracy based on a representative telephone survey conducted two weeks prior to the 2013 German national election. Respondents demonstrated reasonable accuracy in remembering poll results, when they had been exposed to them, and this did not tend to improve drastically with more exposure. Only in the case of recalling the relative poll ranks as opposed to vote shares was more exposure associated with better recall. Politically knowledgeable individuals were consistently better at recalling the polls, but greater interest in the election did not improve recall beyond this.

DOI: https://doi.org/10.1080/15205436.2021.1936559

Routledge
Taylor & Francis Group

Mass Communication and Society

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/hmcs20

Total Recall? Examining the Accuracy of Poll Recall during an Election Campaign

Thomas Zerback, Carsten Reinemann & Matthew Barnfield

To cite this article: Thomas Zerback, Carsten Reinemann & Matthew Barnfield (2021): Total Recall? Examining the Accuracy of Poll Recall during an Election Campaign, Mass Communication and Society, DOI: 10.1080/15205436.2021.1936559

To link to this article: https://doi.org/10.1080/15205436.2021.1936559

Published online: 14 Jun 2021.

MASS COMMUNICATION AND SOCIETY
https://doi.org/10.1080/15205436.2021.1936559

Routledge
Taylor & Francis Group

Total Recall? Examining the Accuracy of Poll Recall during an Election Campaign

Thomas Zerback[a], Carsten Reinemann[b], and Matthew Barnfield[c]

[a]Department of Communication and Media Research, University of Zurich, Zürich, Switzerland; [b]Department of Media and Communication, Ludwig-Maximilians-University Munich, Munich, Germany; [c]School of Politics and International Relations, ArtsOne Building, Queen Mary University of London, London, UK

ABSTRACT

Despite a considerable interest in the effects of polls published during election campaigns, we know little about how well people internalize and remember their results. This paper studies how accurately citizens recall poll results and factors potentially influencing this accuracy. Theoretically, we draw on research into the perception of polls and poll effects as well as into media effects on political knowledge in general. Empirically, we investigate recall accuracy based on a representative telephone survey conducted two weeks prior to the 2013 German national election. Respondents demonstrated reasonable accuracy in remembering poll results, when they had been exposed to them, and this did not tend to improve drastically with more exposure. Only in the case of recalling the relative poll ranks as opposed to vote shares was more exposure associated with better recall. Politically knowledgeable individuals were consistently better at recalling the polls, but greater interest in the election did not improve recall beyond this.

Polls have become an integral part of election coverage over recent decades. This trend has been observed in various democracies, including the USA (Traugott, 2005), Germany (Brettschneider, 2008), Israel (Shaefer et al., 2008), Sweden (Strömbäck, 2009), and Italy (Roncarolo, 2008). Since the first scientific polls were published in the 1930s, researchers have been particularly interested in their effects on voters' attitudes and behavior (Hardmeier, 2008; Moy & Rinke, 2012). The bandwagon (Barnfield, 2019) and underdog effects (Lee, 2011) are two prominent examples of such behavioral effects. Moreover, polls shape subjective predictions about the outcome of an election, even when

CONTACT Thomas Zerback t.zerback@ikmz.uzh.ch University of Zurich, Andreasstrasse 15, Zürich 8050, Switzerland

other factors, like the general tone of political media coverage, political preferences, and perceived opinions in people's personal social environments are controlled for (Zerback et al., 2015). Despite this considerable interest in poll effects, our knowledge of how they come about is still quite limited, although more recent work has also focused on the perception and assessment of polls (e.g., Madson & Hillygus, 2020). For example, Mutz (1997) asserts a need for understanding the social psychological processes behind poll effects since the majority of empirical studies only focus on behavioral outcomes of poll exposure, particularly participation in elections and voting decisions.

Theoretically we should expect that any influence polls might have would rely on at least three prerequisites (Zaller, 1992). First, voters would have to be exposed to polls, e.g., through the media. Second, they have to internalize them, and third, they have to consider them when forming opinions or casting their vote (McAllister & Studlar, 1991, p. 723). Yet little is known about voters' capacity to recall poll results accurately and what factors influence this ability. This question matters for two key reasons. First, individual differences in poll recall might clarify why behavioral effects of polls are mostly observed in experimental, not observational, settings (Hardmeier, 2008). Compared to forced-exposure laboratory situations, in real life polls might be barely noticed, superficially perceived, or simply not remembered. People may have insufficient cognitive or motivational capacity or may forget poll results after they have informed their attitudes or behavior. Second, individual differences in poll recall accuracy might lead to varying and even irrational political decisions, especially when polls are used to inform strategic voting (Gschwend, 2007; Irwin & Van Holsteyn, 2012).

We address this gap by looking at people's ability to accurately recall the standings of parties in the polls, asking (1) Do people recall published polls, and if they do, how accurate are their judgements? and (2) What are the factors influencing this accuracy? Drawing from relevant literature, we propose that increased poll exposure increases accuracy, but so do higher levels of general political knowledge and interest in the election. We also acknowledge the possibility that sociodemographic factors and partisan considerations might have an effect. Since demographics are known correlates of political information acquisition in general, this might apply to more specific information types such as poll recall. Partisan preferences, meanwhile, may skew people's perceptions in favor of their preferred parties. Our analysis is based on a regionally representative survey carried out in Berlin in the lead up to the 2013 German national election. Although increased exposure did not drastically increase the accuracy of recall, it was associated with an improved ability to rank the parties according to their standings in the polls. Political knowledge consistently and strongly predicted accurate poll perceptions, while interest in the election did not. We

propose potential reasons for, and implications of, these and other findings in the discussion section.

Are people likely to remember poll results?

Polls have at least two characteristics that potentially limit people's ability to remember them. First, their results are prone to continuous change, particularly because public opinion can be volatile between and within election campaigns. Second, poll results represent only one specific aspect of campaign information. Given the constraints of information processing, both characteristics should make it difficult for most people to recall poll results (Lang, 2000). Empirical work on the recollection of mediated information seems to support this assumption. When reading news reports (Graber, 2001) or watching television news (Neuman, 1976), most people store only general meanings, while specific details are erased from memory. Therefore, "inaccurate, incomplete recall of political and other stories … should be expected as the norm, rather than considered to be the exception" and "recallable knowledge is likely to be eclectic and sparse … and often error-prone" (Graber, 2001, p. 14). Therefore, it seems reasonable to expect that most citizens hold rather rough impressions of political majorities or minorities instead of remembering the exact polling numbers.

However, people are exposed to polls very frequently – especially during election campaigns – and do appear to be quite attentive to them. In 1996, 55% of US adults said that they follow public opinion polls at least occasionally (Traugott & Kang, 2000). Similarly, in the UK in 1979, 1983, and 1987, two thirds of the population said that they had seen an opinion poll "in the last few days" (McAllister & Studlar, 1991). In Germany, in 2005, only 8% of the population indicated that they never noticed public opinion polls during the course of the national election (Faas & Schmitt-Beck, 2007) and in 2013, one day before the election, 70% said that they had seen polls within the past week (Partheymüller & Schäfer, 2013).

Despite the empirical insights on poll exposure, much less is known about whether people are able to remember the results. Research in the area dates back to the 1990s or earlier, when published polls were far less widespread than today (Brettschneider, 2008). This is somewhat surprising since recall should be a central antecedent for behavioral and attitudinal poll effects – both subject to extensive empirical investigation (Barnfield, 2019; Moy & Rinke, 2012) and normative debate (Donsbach, 2001). Studies in poll effects rely on the (often implicit) assumption that people base their political attitudes and behavior on the perceived public support for political parties or candidates and that polls provide an important cue for their judgments (Mutz, 1997). However, as with any type of political knowledge or assessment, individual notions of who is currently leading or trailing

may vary across citizens. As a result, differences in actual poll recall could prompt different behaviors.

The few studies conducted so far differ in their methodological design and the level of detail provided by their measures, making it difficult to draw general conclusions. Whereas most use categorical recall measures, either asking for the currently leading party (McAllister & Studlar, 1991) or candidate (Lavrakas et al., 1991), only one asks for exact percentages (Babad, 1997). In a nationally representative survey conducted by Lavrakas et al. (1991), 95% of Americans correctly identified George Bush as the candidate leading according to the polls. In Israel, Babad (1997) found that close to election day, 30% of participants said that they know the results of the latest polls. However, less than half were accurate in their judgments. McAllister and Studlar (1991) report that most of their British respondents were able to correctly identify the currently leading party during the 1983 and 1987 general elections.

Reflecting the limited knowledge on this issue and the different measurement approaches employed so far, we pose our first research question, which differentiates between both existing measures.

RQ1: How well are voters able to remember the relative rankings of the parties taking part in an election, and their individual shares, according to the polls?

What makes people more likely to remember poll results?

Compared to people's ability to recall polls, even less is known about the factors that might influence this ability. In fact, none of the aforementioned studies consider this. We therefore pose a second question, again distinguishing between the two types of recall.

RQ2: What factors are associated with better recall of the relative rankings, and individual vote shares, of parties reported in the polls?

Since poll results are a specific form of information people can learn about during a campaign, research on the acquisition of political information provides a reasonable starting point in identifying factors that might affect poll recall. Probably the most obvious factor is exposure. Its positive effect on memory is long supported by research on learning (Crowder, 2014). Yet while some studies show positive effects of media consumption on political knowledge (e.g., Wei & Lo, 2008), others do not, particularly when they control for attention paid to media content (Liu & Eveland, 2005; Luskin, 1990). Still others even observe negative effects of certain media (Van Erkel & Van Aelst, 2020). Some scholars have argued that the weak effects of exposure could be explained by how it is measured,

particularly when merely asking how frequently people use certain media (e.g., newspapers). In such cases, it often remains unclear whether the information supposed to lead to a specific type of knowledge (e.g., polls) is actually part of the content consumed. Measuring a specific type of information exposure might be more suitable in this regard (Ohme et al., 2016). We therefore hypothesize that poll exposure should be positively associated to poll recall.[1]

H1: Voters exposed to polls more frequently will recall (a) poll rankings and (b) shares more accurately.

Poll results typically reach citizens through the media. However, numerous studies have shown that audiences recall little information presented in the news (Graber, 1988; Neuman, 1976). Learning abilities, motivations to use media, the attention paid during reception, and the cognitive and/or interpersonal elaboration of the information received can affect learning (Eveland, 2001; Price & Czilli, 1996). These ideas have been conceptualized and confirmed empirically in the context of the cognitive mediation model (Eveland, 2001), but similar arguments also show up in models of mediated information processing (Lang, 2000) and attitude change (Petty & Cacioppo, 1986).

Motivation represents a major driving force of learning about political matters (Delli Carpini & Keeter, 1996; Eveland, 2001; Luskin, 1990). If voters are not interested in an election, they might not turn to political coverage in the first place. Even if exposed to political news, a lack of "surveillance motivation" (Eveland, 2001) or more specific motivations (David, 2009) may reduce their attention to media content, the likelihood of elaboration (Petty & Cacioppo, 1986), and the storage of information in memory (Lang, 2000). In line with this, campaign interest has been shown to be a strong predictor of political learning, even if other factors are controlled for (Delli Carpini & Keeter, 1996; Elenbaas et al., 2014; Liu & Eveland, 2005). This leads to our second hypothesis:

H2: Voters more interested in the election will recall poll rankings (a) and shares (b) more accurately.

Apart from motivation, ability is also considered an important precondition for learning – sometimes conceptualized as intelligence (Luskin,

[1]It is not likely that seeing multiple *different* polls will lead people to remember the results of one specific poll more accurately. However, those who see more polls, when asked to recall the picture these polls gave them, should have a better idea of the average rankings and shares of the parties. This also depends on how similar the results of different polls are.

1990) or as prior political knowledge (Nadeau et al., 2008). We follow Zaller (1992) in considering generalized political knowledge, "a measure of general, chronic awareness … assuming that persons who are knowledgeable about politics in general are habitually attentive to communications on most particular issues as well." Indeed, several studies have shown that prior knowledge has a major impact on information acquisition (Elenbaas et al., 2014; Eveland et al., 2003; Nadeau et al., 2008). There are several reasons for this (Zaller, 1992): knowledgeable voters will pay more attention to campaign coverage because political information is meaningful and important to them; they will be exposed to politically relevant information more often; and they will have a higher ability to understand, systematically process, and organize this information, and incorporate it into preexisting knowledge structures (Eveland et al., 2003; Luskin, 1990). We therefore expect preexisting knowledge to have a similar effect here:

H3: Politically knowledgeable voters will recall poll rankings (a) and shares (b) more accurately than those less knowledgeable.

Prior research has identified further factors influencing knowledge acquisition in election campaigns (Delli Carpini & Keeter, 1996). While age proves to be relevant only occasionally (Liu & Eveland, 2005), effects of gender are more consistent, suggesting that men tend to learn more than women when it comes to political facts and figures (Drew & Weaver, 2006; Elenbaas et al., 2014). Research suggests, however, that this supposed gender gap is largely an artifact of how political knowledge is measured (Lizotte & Sidman, 2009; Mondak & Anderson, 2004). Education tends to foster knowledge and learning (Delli Carpini & Keeter, 2005; Liu & Eveland, 2005), although there are exceptions (Luskin, 1990). In one of the few studies measuring poll recall, Babad (1997) did not find differences in recall accuracy due to age, gender, or education.

Another factor discussed in the context of poll recall is partisanship. Scholars have speculated that poll recall may undergo a "wishful thinking-like" effect (Babad, 1997, p. 119) – a tendency of beliefs, typically electoral expectations, to vary in an optimistic direction as a function of political preferences (Krizan et al., 2010; Miller et al., 2012). Drawing from motivated reasoning theory (Kunda, 1990), they assume that people may recall higher poll shares for their preferred party or candidate, because it serves to achieve certain "directional" goals. Supporting this, Babad (1997) found that partisan Israeli respondents recalled slightly higher percentages for their own parties – even though published polls at the time showed identical results. Donsbach (2001) reported comparable results from a survey during the 1976 German national election in which partisans tended to declare "their" party as the current leader. Somewhat contrary to the previous studies, Meffert et al. (2011) found that persons with a strong leaning

toward a certain party recalled recent poll results more accurately.[2] Taken together, these findings suggest that it is appropriate to account for age, gender, education and party attachments in explaining poll recall.

Data and method

A representative CATI telephone survey of 1,012 Berlin citizens during the 2013 German national election provides the basis of our analyses.[3] Two weeks before the election on September 22, respondents were interviewed and asked about their general interest in the election, political knowledge, party preferences, poll exposure, poll recall and socio-demographic characteristics. Before the interview started, participants' consent to take part in the study was obtained. All participants were informed about the goal of the survey, that their data would be anonymized and only used for scientific purposes. Wording of all relevant questions is detailed in Appendix 7, with more details on the survey and the sampling process available in Appendix 8.

Dependent variables

We focus on two dependent variables: generic recall of party rankings in the polls and recall of specific party shares in the polls. To capture *rank recall*, respondents were asked to rank the seven parties taking part in the election according to their positions in the polls. If a respondent, for example, correctly identified the CDU to be the leading party, he or she was coded "1." All other ranks, as well as "don't know" responses were regarded incorrect and coded "0."[4] Responses for all parties were summed up to indicate the total number of correctly ranked parties for each respondent.

To capture *percentage recall*, respondents indicated the vote intention shares of the parties according to the current polls. Absolute deviations from the actual poll results were calculated individually using the polls available at the time of the interview. For example, if the CDU's average

[2]Although the study focuses on the accuracy of electoral expectations, the accuracy measure used captures if "an individual prediction was supported by the polls" at the time of the survey (Meffert et al., 2011, p. 808).

[3]Data and code are available here: https://osf.io/75rd4/.

[4]Because our interest is in determining what affects how many parties people rank *correctly*, both "don't know" responses (DKs) and an incorrect ranking can be deemed as a failure to do this. Appendix 2 reports a model in which observations with DKs for any of the first five parties are removed. Effects on their ability to correctly rank these five parties (versus incorrectly ranking them) are weaker than those observed in the main text, but this is of course based on a smaller sample and effect sizes have a lower upper bound because fewer parties are considered. Removing DKs on all seven parties would have resulted in a sample size too small for any informative analysis.

share in the polls was 42%, and a participant recalled a share of 44% or 40%, in either case he or she would be assigned a deviation score of 2 (more details in Appendix 6).

Table 1 shows the published results as reported by the six largest German polling organizations (Allensbach, TNS Emnid, Infratest dimap, Forsa, Forschungsgruppe Wahlen (FGW), and INSA) three weeks before the election (the week before the survey). Importantly, the six companies came up with almost identical results regarding the population's current vote intentions. Respondents were therefore exposed to a homogenous poll environment. This is crucial, because our analyses necessarily focus on averages across these polls. If the polling environment showed more heterogeneity, these average measures would not be suitable benchmarks for accuracy of "recall." Without knowing exactly which poll each respondent saw, measuring averages is the closest we can come to measuring recall, but Table 1 shows this is a good proxy for poll recall as no polls considerably diverged from these averages.

Polls were not only constant; they also drew a clear picture: The CDU dominated the campaign by a mean share of 40.1%, followed by the SPD (25.8%) with a 15-percentage point gap separating the two. The Green Party (10.8%) and the Left (8.4%) were almost equally strong. The FDP (5.3%) and the newcomer AfD (3.1%) were rather weak, as were the Pirates (2.7%), but still interesting cases because polls saw them very close to the election threshold of five percent.

Independent variables

To measure *poll exposure*, participants indicated how often they had come across polls in the media the week before the interview using a five-point scale ranging from 1 "never" to 5 "very often". Only 67 respondents (6.6%) reported that they "never" came across election polls. To measure *interest in the campaign*, respondents were asked how important the upcoming

Table 1. Comparison of the pre-election polls published by the six major polling organizations (% vote intention).

	Forsa	Allensbach	TNS Emnid	FGW	Infratest dimap	INSA	Mean
CDU	39.6	40.0	40.0	41.0	40.8	39.0	**40.1**
SPD	23.8	25.0	25.0	26.0	27.2	27.7	**25.8**
Green	10.2	12.5	11.0	10.1	10.0	11.3	**10.8**
Left	9.4	7.5	9.0	8.0	8.0	8.0	**8.4**
FDP	5.4	6.0	5.0	6.0	5.0	4.1	**5.3**
AfD	3.6	3.0	3.0	3.1	2.9	3.0	**3.1**
Pirates	3.0	2.5	3.0	2.1	3.0	3.0	**2.7**

Source: www.wahlrecht.de.

election was for them (also using a five-point scale). Voters' *political knowledge* was measured by four questions on general German political knowledge resulting in a summed scale of correct answers. To measure the strength of *party preferences*, we asked participants, again on a five-point scale, to express their overall opinion of each party, from very negative to very positive. Scores were recoded to represent distance from the scale's midpoint, for every party, such that a neutral opinion is represented as 1, a slight like or dislike as 2, a strong like or dislike represented as 3, and no expressed opinion as 0. Summing these scores resulted in an overall indicator of partisan sentiment strength irrespective of specific partisan identity.[5] In the case of generic rank recall, we adjust for this summated score, expecting that those with higher values will be generally less accurate in their recall owing to the bias induced by strong, polarized party preferences.[6] For the specific party vote share recall models, we simply control for the five-point scale item recording preferences toward the specific party – those who like *this* party more should overstate its share. Standard measures of age, gender and level of education are also included as controls.

To test the effects of our predictors on the rank recall and percentage recall outcomes, we fit several linear regression models. Where the predictors are on ordinal scales, we follow recently proposed best practices in assessing their effects as "monotonic" in a flexible Bayesian framework (Bürkner & Charpentier, 2020). This approach is specifically tailored to modeling the effects of ordinal predictors, describing these intuitively as follows: there is an average change in the outcome associated with every one-unit change in the predictor, but the expected difference between any two adjacent categories, as a proportion of the

[5]We also ran a version of the analyses using item response theory (IRT) instead of summated scales in every case that they were used. The results were comparable. Xu and Stone (2012) suggest that the summated scores approach is often preferable in simple applications such as this, as it requires fewer assumptions.

[6]We do this because it is not clear how preferences for any specific party should affect overall recall (Meffert et al., 2011, p. 809). For example, although we might expect someone who likes the SPD to incorrectly rank it in first place, it is not clear that their overall ranking ability would change much beyond this, especially when compared to someone who *dislikes* the SPD and therefore ranks it lower. In both cases, we would expect these voters to rank two parties incorrectly. Nonetheless, Appendix 1 reports results when controlling for the opinion toward each party individually, instead of the summated score. The results of all main effects are comparable. Appendix 4 reports results regarding the ability to correctly rank each party individually for our three main parties of interest. Here, we instead use the indicator of feelings toward the relevant party because wishful thinking should be targeted toward that party. Results suggest that wishful thinking effects are minimal at best or—if they are present—are canceled out by people who *dislike* the party by ranking it too low.

overall effect, can vary. We fit these models using the Bayesian *brms* package in *R* (Bürkner, 2017).[7]

Here we report the results of four models in total. The first is the rank recall model, which is generic in that it captures how many parties the individual correctly ranked, rather than focusing on any specific party. The second, third and fourth models focus on the CDU, the SPD and the FDP, capturing the absolute deviation between their average shares in the polls and the score assigned to them by the individual, among those individuals who reported a score. We select the CDU and SPD because they were the two strongest parties throughout the campaign. Although neither of them was able to achieve an absolute majority in the polls, they nevertheless represented the opinion of the largest segments of the electorate. Additionally, we include the FDP, representing a party which traditionally acts as a potential coalition partner and because polls put it very close to the election threshold of five percent. Both circumstances made it an ideal candidate for strategic voting. We also fit equivalent models for the Pirates, the AfD, the Greens and the Left, and report the results in Appendix 5.

Results

Ranking accuracy

Firstly, in terms of *RQ1*, Table 2 presents the percentages of respondents who remembered each of the parties' ranks accurately. Clearly, ranking the largest parties accurately was much easier than ranking the smaller ones. This is perhaps unsurprising given that the differences between these parties' shares are (in absolute terms) much smaller than those between the larger parties. Overall, this represents a reasonably good level of recall, with the majority of respondents correctly ranking the two major parties. It is also worth noting that, in asking the question, interviewers did not specifically name parties for the respondent to rank and asked for further parties only once when respondents did not mention additional parties

Table 2. Percentage of respondents able to correctly rank each party's position in recent pre-election polls. N = 945.

CDU	SPD	Green	Left	FDP	AfD	Pirates
86.98% (822)	84.87% (802)	59.26% (560)	37.14% (351)	35.56% (336)	5.82% (55)	3.70% (35)

[7]The priors used in these models are conservative and weakly informative. See Appendix 9 for more details.

(e.g., "And the second-best party?"). It is likely that, had the interviewer read out each party's name in turn, ranking performance could have increased, if even by guesswork.

Turning to RQ2, the key results of the rank recall model are presented in Figure 1.[8] The first three plots show the predicted number of correctly ranked parties, and 95% confidence intervals, across the range of each of the three main independent variables: poll exposure, political knowledge, and interest in the election. In the case of poll exposure and election interest, these relationships are not strictly linear, because the change in the outcome associated with each increase in the predictor is allowed to vary at different levels. The final, bottom-right plot captures the average change in the number of correctly ranked parties associated with each predictor.

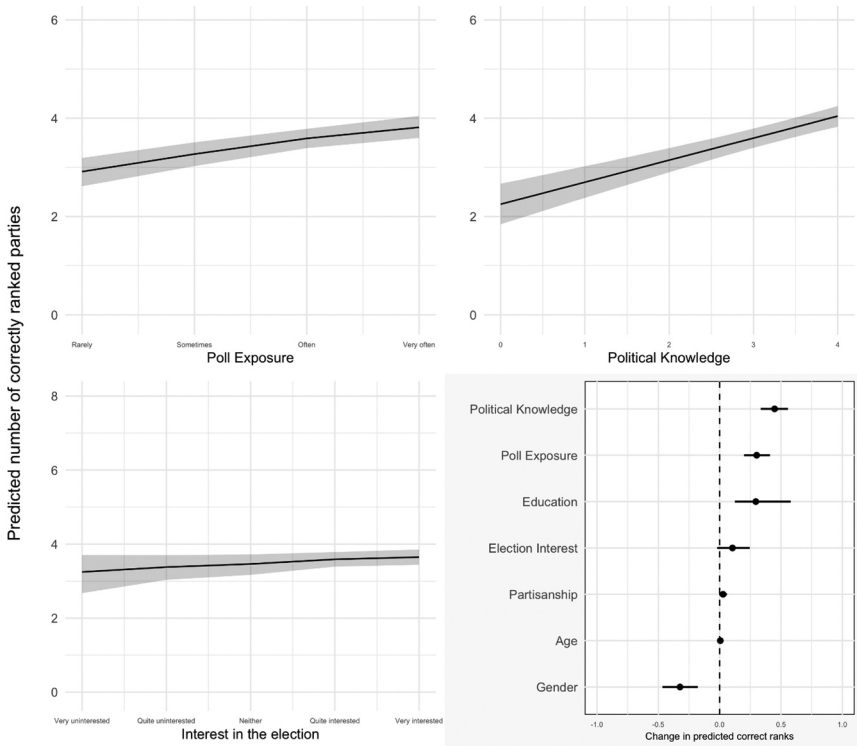

Figure 1. Results of generic poll rank recall model.

[8]We also modeled the correct rankings as binomially distributed, but the estimated effects for the main parameters were equivalent to those in the linear regression model, so we focus on these here for ease of interpretation. The main results of the binomial models are reported in Appendix 3.

Top left/right/bottom left: change in predicted number of correctly ranked parties (line) as poll exposure/knowledge/interest increases, with 95% confidence intervals (shaded region). Bottom right: average expected change in number of correctly ranked parties associated with each predictor (points) and 95% confidence interval (bars).

These results support *H1(a)* and *H3(a)*: those who have been exposed to more polls and those who are more politically knowledgeable are generally able to accurately recall the ranks of more parties in the polls. Looking first at poll exposure, this relationship is clearly positive, but also slightly different at different levels of exposure. For example, the slope between having seen polls "often" and "very often" is slightly flatter than between seeing them "rarely" and "sometimes". In other words, there is a point at which the marginal gain of seeing more polls starts to decrease. On average, this effect is positive: the expected gain in the number of correctly ranked parties brought about by increased exposure is approximately 0.2–0.4.

The linear effect of political knowledge is also positive, and more strongly so. Those who answered one additional political knowledge question correctly are expected on average to have a correct ranking score almost 0.5 points higher, such that those with the highest levels of political knowledge rank on average almost two more parties correctly. This suggests that the politically more knowledgeable, independently of how avidly they follow the polls, are considerably better able to recall how the parties stand relative to each other.

The results provide little support for *H2(a)*, given that increased interest in the election is not convincingly associated with a better ability to correctly rank the parties. This, again, varies at different levels of interest, but at no point is the relationship particularly pronounced. The model summary does, however, indicate that those with higher levels of education are better at ranking the parties, net of other effects. Those who are better educated learn well from information even when exposure to polls and general political knowledge are controlled for. Men, on average, also correctly ranked significantly more parties than women. The discussion section below suggests potential reasons for why this might emerge here – notably, the so-called "guessing effect" (Lizotte & Sidman, 2009).

Percentage recall accuracy

Turning to percentage recall, in terms of RQ1, a first point to note is that a reasonably large proportion of respondents could not recall specific party vote shares at all. Approximately 72% of respondents could recall a vote share for the CDU, 71% for the SPD, and 62% for the FDP. However, Figure 2 shows that those who recalled a share did so with considerable

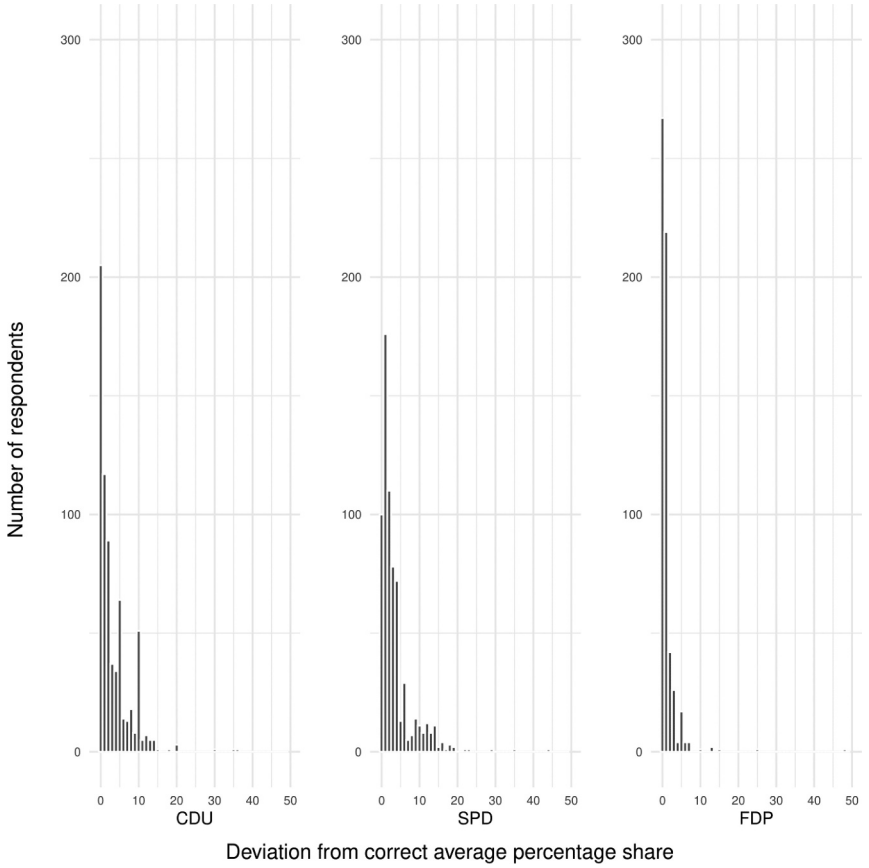

Figure 2. Distribution of deviation from each party's correct average vote share, among those who were able to recall a vote share.

accuracy, coming very close to the parties' average in recent polls. The modal deviation is either 0–1% (CDU and FDP) or 1–2% (SPD). Predictably, there is greater absolute deviation for the CDU and the SPD than for the FDP, given the FDP had a vote share much closer to zero, not only limiting the extent to which people could understate its share, but also making it unlikely they would mistakenly think it is polling extremely well. Figure 2 also shows that despite the relatively high accuracy found in the aggregate, there is still variance at the individual level.

Returning to RQ2, Figures 3, 4 and 5 present the results of the percentage recall models for each of the three parties in an attempt to explain this variability. These take the same form as Figure 1, but this time greater accuracy is captured by *negative* relationships, since they represent a trend toward less deviation from the correct percentages. Those who were exposed to polls more frequently appear to recall each party's vote share

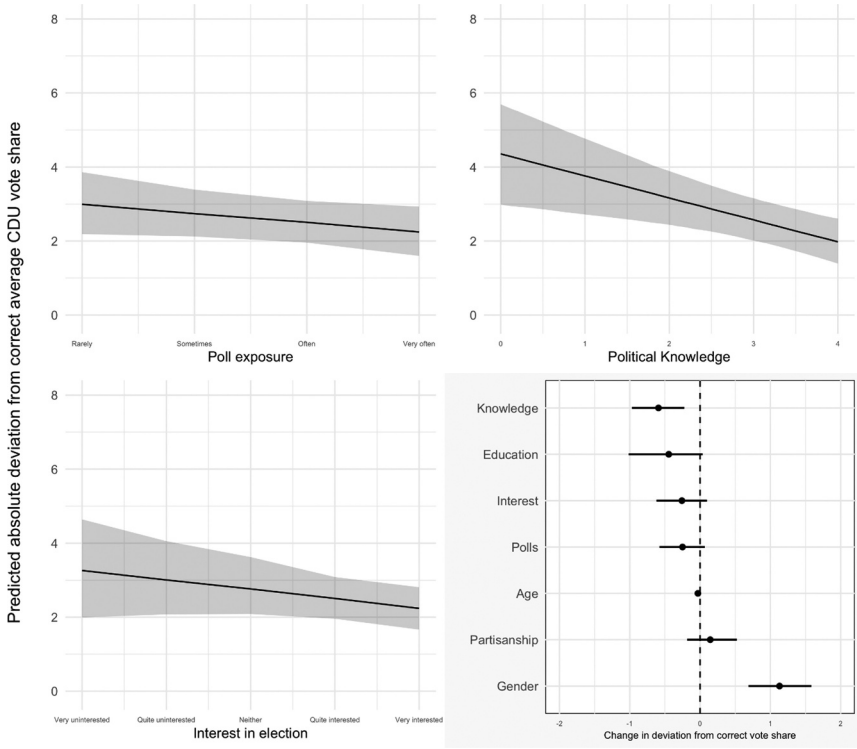

Figure 3. Results of CDU percentage recall model.

slightly more accurately on average, but this effect is never discernible from zero. Moreover, the slopes are consistently flat, indicating little variation in this null effect at different levels of exposure. There is therefore minimal support for *H1(b)*.

Top left/right/bottom left: change in predicted absolute deviation from accurate recall (line) as poll exposure/knowledge/interest increases, with 95% confidence intervals (shaded region). Bottom right: average expected change in absolute deviation from accurate recall associated with each predictor (points) and 95% confidence interval (bars).

Political knowledge, meanwhile, continues to be a good predictor of recall accuracy for the CDU's and the SPD's vote shares, although not for the FDP. The most politically knowledgeable tended to be, on average, within two percentage points of the correct CDU vote share, and approximately two percentage points closer than the least knowledgeable. This effect is even stronger for the SPD, for whom the least knowledgeable tend to recall vote shares around six percentage points off the correct share, while the most knowledgeable tend to be accurate to within two percent. This is supportive of

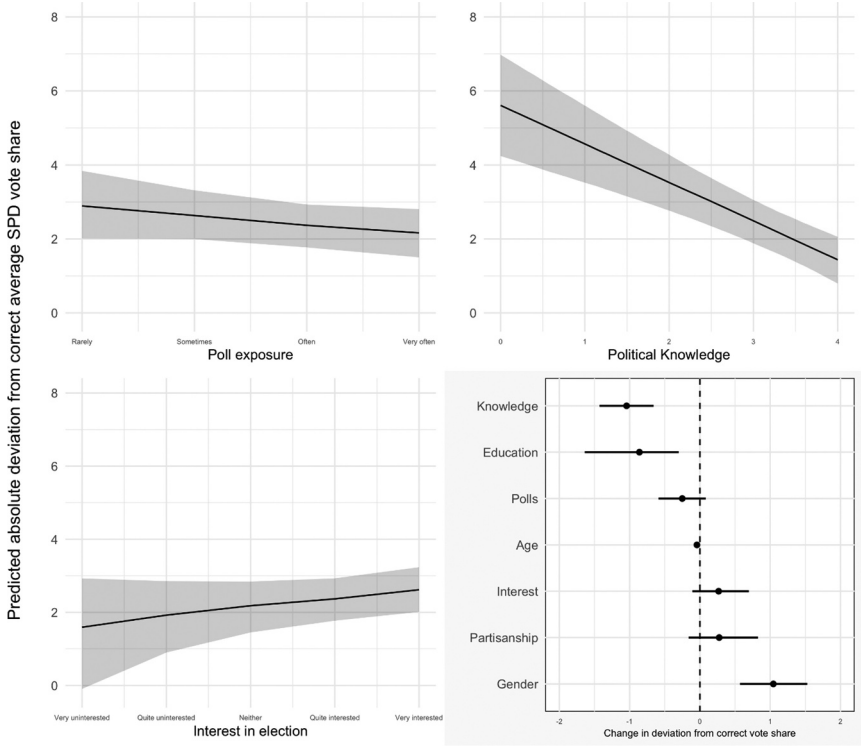

Figure 4. Results of SPD percentage recall model.

H3(b). Again, it suggests that those who are politically aware are able to recall the relative standing of the parties well, independent of their attention to polls. For the FDP, the least knowledgeable *and* the most knowledgeable tend to be within around one to two percentage points of the correct share. This is likely to be due to the fact that the FDP's vote share is itself consistently below five percent, leaving little room for deviation.

Top left/right/bottom left: change in predicted absolute deviation from accurate recall (line) as poll exposure/knowledge/interest increases, with 95% confidence intervals (shaded region). Bottom right: average expected change in absolute deviation from accurate recall associated with each predictor (points) and 95% confidence interval (bars).

In none of the three cases does interest in the election campaign strongly influence recall accuracy, when controlling for alternative explanations, so there is little support for *H2(b)*. Only in the case of the CDU is this relationship even in the hypothesized direction. It appears that interest in itself does not lead to more accurate recall when accounting for the fact that

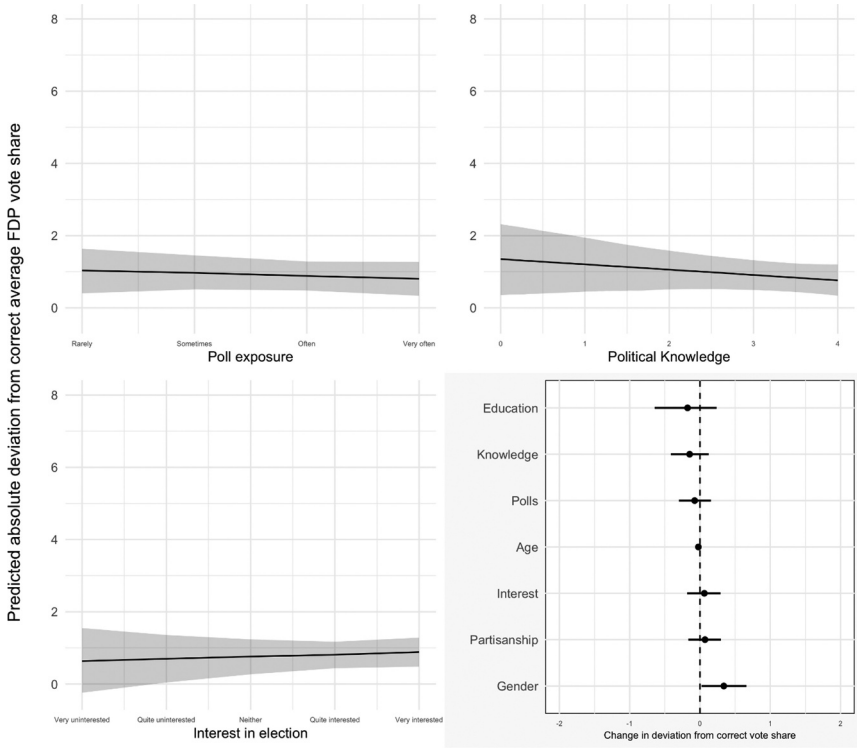

Figure 5. Results of FDP percentage recall model. Top left/right/bottom left: change in predicted absolute deviation from accurate recall (line) as poll exposure/knowledge/interest increases, with 95% confidence intervals (shaded region). Bottom right: average expected change in absolute deviation from accurate recall associated with each predictor (points) and 95% confidence interval (bars).

the more interested might also be more likely to see polls, and more knowledgeable in general.

Education tends to foster more accurate recall, but only convincingly so for the SPD. Gender, however, is again strongly influential. Men are consistently more likely to give accurate percentages, by approximately one percent for both the CDU and SPD, and by just under half a percent for the FDP. This could again be partly due to a "guessing effect" (Lizotte & Sidman, 2009). For all three parties, the more someone likes that party, the less accurate they tend to be, suggesting the presence of a wishful thinking-like effect, but this effect is not confidently greater than zero. This is perhaps unsurprising, given that the models measure *absolute* deviation in recall. As well as those who like the party overstating its share, those who dislike the party might understate its share. These effects can cancel out in absolute terms. Partly for this reason,

below we encourage further research employing more fine-grained strategies to measure wishful thinking in poll recall.

Discussion

Our results show that voters are able to recall poll results quite well. Respondents who had seen polls tended to correctly recall the currently leading parties, whereas they struggled more to rank the smaller ones relative to each other. The same pattern could be observed for exact vote shares, in that the majority was able to indicate a specific share for the leading parties, whereas most of them failed to do so for the smaller ones. However, those who recalled a party-specific vote share tended to do so quite accurately. In addition, people's recall ability depended on several factors. We found that increased exposure to polls led to a more accurate ranking of the parties according to their relative standings in recent polls, but that this did not markedly improve their ability to accurately recall the vote shares of these parties. This effect did not vary much depending on the level of exposure: the difference between those who saw polls "often" and "sometimes" was generally very close to that between those who saw them "rarely" and "sometimes," for example. For rank recall though, there was some suggestion that the effect started to tail off as people went from seeing polls "often" to "very often."

Generalized political knowledge was consistently associated with more accurate recall of party rankings and vote shares, suggesting that the politically knowledgeable are also able to recall how much support the parties enjoy – regardless of how closely they are following the polls. The only exception to this is the FDP, for which deviations from accurate percentage recall are limited by the fact that its vote share is so close to zero. Hence, constant poll exposure may not be a necessary condition for accurate poll recall for those who are politically knowledgeable.

Net of these effects, interest in the election had no discernible independent influence on accuracy. This does not necessarily suggest that those who are more interested do not tend to recall polls better. Rather, if this is the case, it could be that their recall is better *because* those who are more interested in an election are also (perhaps as a result) more politically knowledgeable and exposed to more polls. A further possibility is that our measure of interest in the election simply does not capture variance in political interest very well. Most respondents reported that the outcome of the election was rather important or very important to them, such that variability in interest might be captured better by levels of political knowledge, or indeed poll exposure.

Beyond these main findings, we also found that education tended to foster poll recall accuracy, speaking to the assertion that the more educated

learn more from political information (Delli Carpini & Keeter, 2005). While age did not affect recall, gender was consistently important: men tended to give more accurate assessments than women. This is consistent with empirical indications of a gender gap in political knowledge, which is most likely partly illusive. One prominently suggested reason is that women are simply less likely to guess in answering questions for which they are uncertain (Lizotte & Sidman, 2009; Mondak & Anderson, 2004), while some men will get the answer right even when they are uncertain. In the rank recall model, this would translate into men potentially correctly ranking more parties than women, who are less likely to hazard a guess preventing them getting this answer right. The fact that this difference is robust to the effect of election interest, poll exposure and political knowledge suggests that it is not due to confounding with any of these measures. Future research could seek to explore these dynamics more directly in the case of learning from polls.

Finally, our results do not suggest a strong effect of partisanship on poll recall. We nonetheless think that further investigation of this is worthwhile, partly because our approach is arguably unlikely to detect any such effects. Partisan effects are unlikely to be strong in generic rank recall, and the choice to focus on *absolute* deviations in percentage recall potentially masks countervailing effects among partisans and nonpartisans. Also, preference-induced differences in poll recall still may occur at different levels of the communication process. On the one hand, they could result from mere selective exposure (e.g., Lodge & Taber, 2013; Stroud, 2008) in that citizens tend to consume polls that reflect their own political preferences. In this case poll recall would differ simply because of the information people have been exposed to. This could also explain why in our case, the effects of political preferences were relatively small. Since poll results during the 2013 election were nearly identical across the main polling organizations, selective exposure could not have led to major individual differences in the poll information people received. On the other hand, political preferences could also affect the way in which (identical) polling information is processed and evaluated. Motivated reasoning theory (Kunda, 1990) suggests, that people's cognitive processing of polls also depends on their individual motivations or goals. Hence, even in situations where people encounter the same polls and recall results in an unbiased manner, they might still indicate different numbers, because they weight polls differently depending on whether they help them achieve their "directional" motivations. Recent studies have shown that people view polls as less credible when the poll result contradicted their own view, (for example, Kuru et al., 2017; Madson & Hillygus, 2020) while the ideological alignment of the news source does not seem to influence perceived poll credibility (Kuru et al., 2017). Disentangling the potential

sources and mechanisms of poll selection and processing is demanding, perhaps evidenced by the very negligible effects of partisan sentiment found in our analyses, but it is nevertheless a promising task for future research. In addition to the effects of partisanship on poll processing, cognitive availability of poll results might also depend on the timing of poll publication, with possible primacy and/or recency effects on the side of the recipient.

The generalizability of our findings might be limited by the geographical and election context. Berlin, as the country's political center with a particularly rich media environment, could have made it more likely for its citizens to encounter polls compared to other regions. Similarly, Germany as a multi-party system with an electoral threshold and the possibility of forming party coalitions could make poll information more relevant and useful for citizens, leading to increased consumption of polls. We also have to consider the specific situation during the 2013 election where poll coverage was rather intensive (Reinemann & Zerback, 2017). We can therefore assume that even moderately interested voters were exposed at least to basic poll information. Moreover, the pronounced poll homogeneity during the 2013 campaign might not be a typical scenario. Since modern media environments provide polling information from various sources (Rosenstiel, 2005), citizens might end up with very different notions of the current state of the race depending on their individual media consumption. Selective reporting of poll results that match the political leanings of partisan media outlets (Tremayne, 2015) or are used to tell a certain story of the campaign race (Rosenstiel, 2005) further contribute to such a heterogenous polling environment. Such variations in published polls could result in a situation where citizens increasingly turn to congenial poll results.

In addition, even in non-election periods polls have become a standard feature of political reporting. This means that even people following political coverage only occasionally or only immediately before the election might still be able to guess at the parties' popularity rankings. For example, the CDU has been the leading political party in Germany for years and most citizens should know that.

Finally, our study did not investigate further consequences of poll recall. We do not know, for example, whether the accuracy of poll recall is related to the susceptibility for poll effects on voting behavior. It seems plausible to assume that voters who consider poll results in their voting decisions will do so by relying on the numbers they remember, which are not necessarily those actually reported. As a result, strategic voting decisions may be based on inaccurate premises. Our results also indicate that more politically knowledgeable citizens tend to have more accurate notions of current standing in the polls and therefore are less prone to such errors regarding their strategic decisions based on polls. Analyzing this potentially mediating

role of poll recall when it comes to the effects of polls on voting decisions could be another promising path for future research. Similarly, future research could examine the potentially mediating role of general political knowledge in the acquisition of poll knowledge. Since the use of specific media is known to exert a positive effect on political knowledge in general (Dimitrova et al., 2014), positive indirect effects on poll recall are also possible.

Notes on contributors

Thomas Zerback, Ph.D., is Assistant Professor of Political Communication in the Department of Communication and Media Research at the University of Zurich, Switzerland.

Carsten Reinemann, Ph.D., is Full Professor of Political Communication in the Department of Media and Communication at Ludwig-Maximilians-University Munich, Germany.

Matthew Barnfield is a doctoral student at the School of Politics and International Relations at Queen Mary University of London, United Kingdom.

References

Babad, E. (1997). Wishful thinking among voters: Motivational and cognitive influences. *International Journal of Public Opinion Research*, *9*(2), 105–125. https://doi.org/10.1093/ijpor/9.2.105

Barnfield, M. (2019). Think twice before jumping on the bandwagon: Clarifying concepts in research on the bandwagon effect. *Political Studies Review*, online first. https://doi.org/10.1177/1478929919870691

Brettschneider, F. (2008). The news media's use of public opinion polls. In W. Donsbach & M. W. Traugott (Eds.), *The SAGE handbook of public opinion research* (pp. 479–486). Sage Publications.

Bürkner, P. C. (2017). brms: An R package for Bayesian multilevel models using stan. *Journal of Statistical Software*, *80*(1), 1–28. https://doi.org/10.18637/jss.v080.i01

Bürkner, P. C., & Charpentier, E. (2020). Modelling monotonic effects of ordinal predictors in Bayesian regression models. *The British Journal of Mathematical and Statistical Psychology*, *73*(3), 420–451. online first. https://doi.org/10.1111/bmsp.12195

Crowder, R. G. (2014). *Principles of learning and memory: Classic edition. Psychology press & routledge classic editions*. Taylor and Francis. http://gbv.eblib.com/patron/FullRecord.aspx?p=1864866

David, C. C. (2009). Learning political information from the news: A closer look at the role of motivation. *Journal of Communication*, *59*(2), 243–261. https://doi.org/10.1111/j.1460-2466.2009.01414.x

Delli Carpini, M. X., & Keeter, S. (1996). *What Americans know about politics and why it matters*. Yale University Press.

Delli Carpini, M. X., & Keeter, S. (2005). Gender and political knowledge. In S. Tolleson-Rinehart & J. J. Josephson (Eds.), *Gender and American politics. Women, men, and the political process* (2nd ed., pp. 21–52). Sharpe.

Dimitrova, D. V., Shehata, A., Strömbäck, J., & Nord, L. W. (2014). The effects of digital media on political knowledge and participation in election campaigns. *Communication Research*, *41*(1), 95–118. https://doi.org/10.1177/0093650211426004

Donsbach, W. (2001). *Who's afraid of election polls? Normative and empirical arguments for the freedom of pre-election surveys*. ESOMAR.

Drew, D., & Weaver, D. H. (2006). Voter learning in the 2004 presidential election: Did the media matter? *Journalism & Mass Communication Quarterly*, *83*(1), 25–42. https://doi.org/10.1177/107769900608300103

Elenbaas, M., De Vreese, C. H., Schuck, A., & Boomgaarden, H. (2014). Reconciling passive and motivated learning: The saturation-conditional impact of media coverage and motivation on political information. *Communication Research*, *41* (4), 481–504. https://doi.org/10.1177/0093650212467032

Eveland, W. P. (2001). The cognitive mediation model of learning from the news: Evidence from nonelection, off-year election, and presidential election contexts. *Communication Research*, *28*(5), 571–601. https://doi.org/10.1177/009365001028005001

Eveland, W. P., Shah, D. V., & Kwak, N. (2003). Assessing causality in the cognitive mediation model: A panel study of motivations, information processing, and learning during Campaign 2000. *Communication Research*, *30*(4), 359–386. https://doi.org/10.1177/0093650203253369

Faas, T., & Schmitt-Beck, R. (2007). Wahrnehmung und Wirkungen politischer Meinungsumfragen. Eine Exploration zur Bundestagwahl 2005. In F. Brettschneider, O. Niedermayer, & B. Wessels (Eds.), *Die Bundestagswahl 2005: Analysen des Wahlkampfes und der Wahlergebnisse* (pp. 233–267). VS Verlag für Sozialwissenschaften/GWV Fachverlage GmbH Wiesbaden.

Graber, D. A. (1988). *Processing the news. How people tame the information tide* (2nd ed.). Longman.

Graber, D. A. (2001). *Processing politics. Learning from television in the internet age. Studies in communication, media, and public opinion*. University of Chicago Press.

Gschwend, T. (2007). Ticket-splitting and strategic voting under mixed electoral rules: Evidence from Germany. *European Journal of Political Research*, *46*(1), 1–23. https://doi.org/10.1111/j.1475-6765.2006.00641.x

Hardmeier, S. (2008). The effects of published opinion polls on citizens. In W. Donsbach & M. W. Traugott (Eds.), *The SAGE handbook of public opinion research* (pp. 504–513). Sage Publications.

Irwin, G. A., & Van Holsteyn, J. J. (2012). Strategic electoral considerations under proportional representation. *Electoral Studies*, *31*(1), 184–191. https://doi.org/10.1016/j.electstud.2011.10.007

Krizan, Z., Miller, J. C., & Johar, O. (2010). Wishful thinking in the 2008 U.S. presidential election. *Psychological Science*, *21*(1), 140–146. https://doi.org/10.1177/0956797609356421

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*(3), 480–498. https://doi.org/10.1037/0033-2909.108.3.480

Kuru, O., Pasek, J., & Traugott, M. W. (2017). Motivated reasoning in the perceived credibility of public opinion polls. *Public Opinion Quarterly*, *81*(2), 422–446. https://doi.org/10.1093/poq/nfx018

Lang, A. (2000). The limited capacity model of mediated message processing. *Journal of Communication*, *50*(1), 46–70. https://doi.org/10.1111/j.1460-2466.2000.tb02833.x

Lavrakas, P. J., Holley, J. K., & Miller, P. V. (1991). Public reactions to polling news during the 1988 presidential election campaign. In P. J. Lavrakas & J. K. Holley (Eds.), *Sage focus editions: Vol. 127. Polling and presidential election coverage* (pp. 151–183). Sage Publications.

Lee, W. (2011). Bandwagon, underdog, and political competition: The uni-dimensional case. *Social Choice and Welfare*, *36*(3–4), 423–449. https://doi.org/10.1007/s00355-010-0515-0

Liu, Y. - I., & Eveland, W. P. (2005). Education, need for cognition, and campaign interest as moderators of news effects on political knowledge: An analysis of the knowledge gap. *Journalism & Mass Communication Quarterly*, *82*(4), 910–929. https://doi.org/10.1177/107769900508200410

Lizotte, M. K., & Sidman, A. H. (2009). Explaining the gender gap in political knowledge. *Politics & Gender*, *5*(2), 127. https://doi.org/10.1017/S1743923X09000130

Lodge, M., & Taber, C. S. (2013). *The rationalizing voter. Cambridge studies in public opinion and political psychology*. Cambridge University Press.

Luskin, R. C. (1990). Explaining political sophistication. *Political Behavior*, *12*(4), 331–361. https://doi.org/10.1007/BF00992793

Madson, G. J., & Hillygus, D. S. (2020). All the best polls agree with me: Bias in evaluations of political polling. *Political Behavior*, *42*(4), 1055–1072. https://doi.org/10.1007/s11109-019-09532-1

McAllister, I., & Studlar, D. T. (1991). Bandwagon, underdog, or projection? Opinion polls and electoral choice in Britain, 1979–1987. *The Journal of Politics*, *53*(3), 720–741. https://doi.org/10.2307/2131577

Meffert, M. F., Huber, S., Gschwend, T., & Pappi, F. U. (2011). More than wishful thinking. Causes and consequences of voters' expectations about election outcomes. *Electoral Studies*, *30*(4), 804–815. https://doi.org/10.1016/j.electstud.2011.08.001

Miller, M. K., Wang, G., Kulkarni, S. R., Poor, H. V., & Osherson, D. N. (2012). Citizen forecasts of the 2008 U.S. presidential election. *Politics & Policy*, *40*(6), 1019–1052. https://doi.org/10.1111/j.1747-1346.2012.00394.x

Mondak, J. J., & Anderson, M. R. (2004). The knowledge gap: A reexamination of gender-based differences in political knowledge. *The Journal of Politics*, *66*(2), 2. https://doi.org/10.1111/j.1468-2508.2004.00161.x

Moy, P., & Rinke, E. M. (2012). Attitutional and behavioral consequences of published opinion polls. In C. Holtz-Bacha & J. Strömbäck (Eds.), *Opinion polls and the media: Reflecting and shaping public opinion* (pp. 225–245). Palgrave Macmillan.

Mutz, D. C. (1997). Mechanisms of momentum: Does thinking make it so? *The Journal of Politics*, *59*(1), 104–125. https://doi.org/10.2307/2998217

Nadeau, R., Nevitte, N., Gidengil, E., & Blais, A. (2008). Election campaigns as information campaigns: Who learns what and does it matter? *Political Communication*, *25*(3), 229–248. https://doi.org/10.1080/10584600802197269

Neuman, W. R. (1976). Patterns of recall among television news viewers. *Public Opinion Quarterly*, *40*(1), 115. https://doi.org/10.1086/268274

Ohme, J., Albaek, E., & De Vreese, H. C. (2016). Exposure research going mobile: A smartphone-based measurement of media exposure to political information in a convergent media environment. *Communication Methods and Measures*, *10*(2–3), 135–148. https://doi.org/10.1080/19312458.2016.1150972

Partheymüller, J., & Schäfer, A. (2013). Das Informationsverhalten der Bürger im Bundestagswahlkampf 2013. *Media Perspektiven*, (12), 574–588.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123–205). Academic Press.

Price, V., & Czilli, E. J. (1996). Modeling patterns of news recognition and recall. *Journal of Communication*, *46*(2), 55–78. https://doi.org/10.1111/j.1460-2466.1996.tb01474.x

Reinemann, C., & Zerback, T. (2017). Wishful thinking und Fallbeil-Effekt? Umfragen, Medien und Wahlerwartungen bezüglich FDP und AfD in der Endphase des Bundestagswahlkampfs 2013. In T. Faas, D. Molthagen, & T. Mörschel (Eds.), *Demokratie und Demoskopie* (pp. 121–150). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-13677-2_9

Roncarolo, F. (2008). News coverage of elections in the log transition of Italian democracy. In J. Strömbäck & L. L. Kaid (Eds.), *ICA handbook series. The handbook of election news coverage around the world* (pp. 308–323). Routledge.

Rosenstiel, T. (2005). Political polling and the new media culture: A case of more being less. *Public Opinion Quarterly*, *69*(5), 698–715. https://doi.org/10.1093/poq/nfi062

Shaefer, T., Weimann, G., & Tsfati, Y. (2008). Campaigns in the holy land: The content and effects of election news coverage in Israel. In J. Strömbäck & L. L. Kaid (Eds.), *ICA handbook series. The handbook of election news coverage around the world* (pp. 209–225). Routledge.

Strömbäck, J. (2009). Vox populi or vox media? opinion polls and the Swedish media, 1998–2006. *Javnost - the Public*, *16*(3), 55–70. https://doi.org/10.1080/13183222.2009.11009009

Stroud, N. J. (2008). Media use and political predispositions: Revisiting the concept of selective exposure. *Political Behavior*, *30*(3), 341–366. https://doi.org/10.1007/s11109-007-9050-9

Traugott, M. W. (2005). The accuracy of the national preelection polls in the 2004 presidential election. *Public Opinion Quarterly*, *69*(5), 642–654. https://doi.org/10.1093/poq/nfi061

Traugott, M. W., & Kang, M. -E. (2000). Public attention to polls in an election year. In P. J. Lavrakas & M. W. Traugott (Eds.), *Election polls, the news media, and democracy* (pp. 185–205). Chatham House Publishers.

Tremayne, M. (2015). Partisan media and political poll coverage. *Journal of Information Technology & Politics*, *12*(3), 270–284. https://doi.org/10.1080/19331681.2015.1063366

Van Erkel, P. F. A., & Van Aelst, P. (2020). Why don't we learn from social media? Studying effects of and mechanisms behind social media news use on general surveillance political knowledge. *Political Communication*, 1–19. Advance online publication. https://doi.org/10.1080/10584609.2020.1784328

Wei, R., & Lo, V. H. (2008). News media use and knowledge about the 2006 U.S. midterm elections: Why exposure matters in voter learning. *International Journal of Public Opinion Research*, *20*(3), 347–362. https://doi.org/10.1093/ijpor/edn032

Xu, T., & Stone, C. A. (2012). Using IRT trait estimates versus summated scores in predicting outcomes. *Educational and Psychological Measurement*, *72*(3), 453–468. https://doi.org/10.1177/0013164411419846

Zaller, J. R. (1992). *The nature and origins of mass opinion*. Cambridge University Press.

Zerback, T., Reinemann, C., & Nienierza, A. (2015). Who's hot and who's not? Factors influencing public perceptions of current party popularity and electoral expectations. *The International Journal of Press/Politics*, *20*(4), 458–477. https://doi.org/10.1177/1940161215596986